

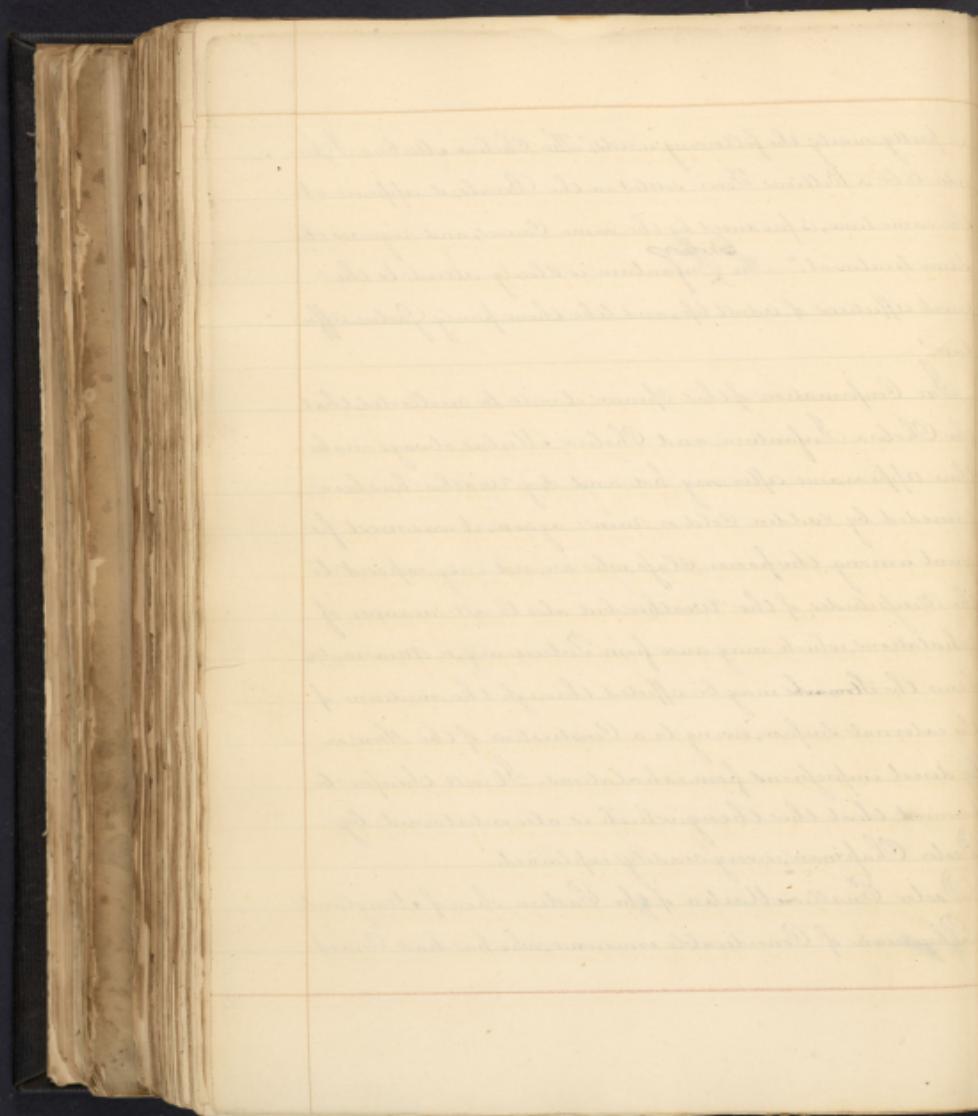
No. 16

An
Inaugural Essay
On
Cholera Infantum
Submitted
To the Provost and Medical Faculty
of
The University of Pennsylvania
For
The Degree of M. D.
By
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of
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in pretty nearly the following words, "The Cholera Morbus I consider to be a Bilious Fever settled in the Bowels; it appears at the same time, is produced by the same Causes, and requires the same treatment." The ^{Cholera} Infantum is closely allied to the bowel affections of adult life, and like them purely Gastric affection!

In Confirmation of this Opinion it will be recollect'd, that the Cholera Infantum and Cholera Morbus, always make their appearance after very hot and dry Weather has been succeeded by sudden Cold or Rain: again, it was most frequent among the poorer Clas's, who are not only exposed to the vicissitudes of the Weather, but also to all manner of exhalations, which may arise from Putrescency, or Miasmatas; hence the Stomach may be affected through the medium of the external surface, owing to a Constriction of the Skin, or by direct impressions from exhalations. It will therefore be perceived that this theory, which is also entertained by Doctor Chapman, is very readily explained.

Doctor Snallis Martin of the Eastern shore of Maryland, a Physician of Considerable eminence, who has had Consider-

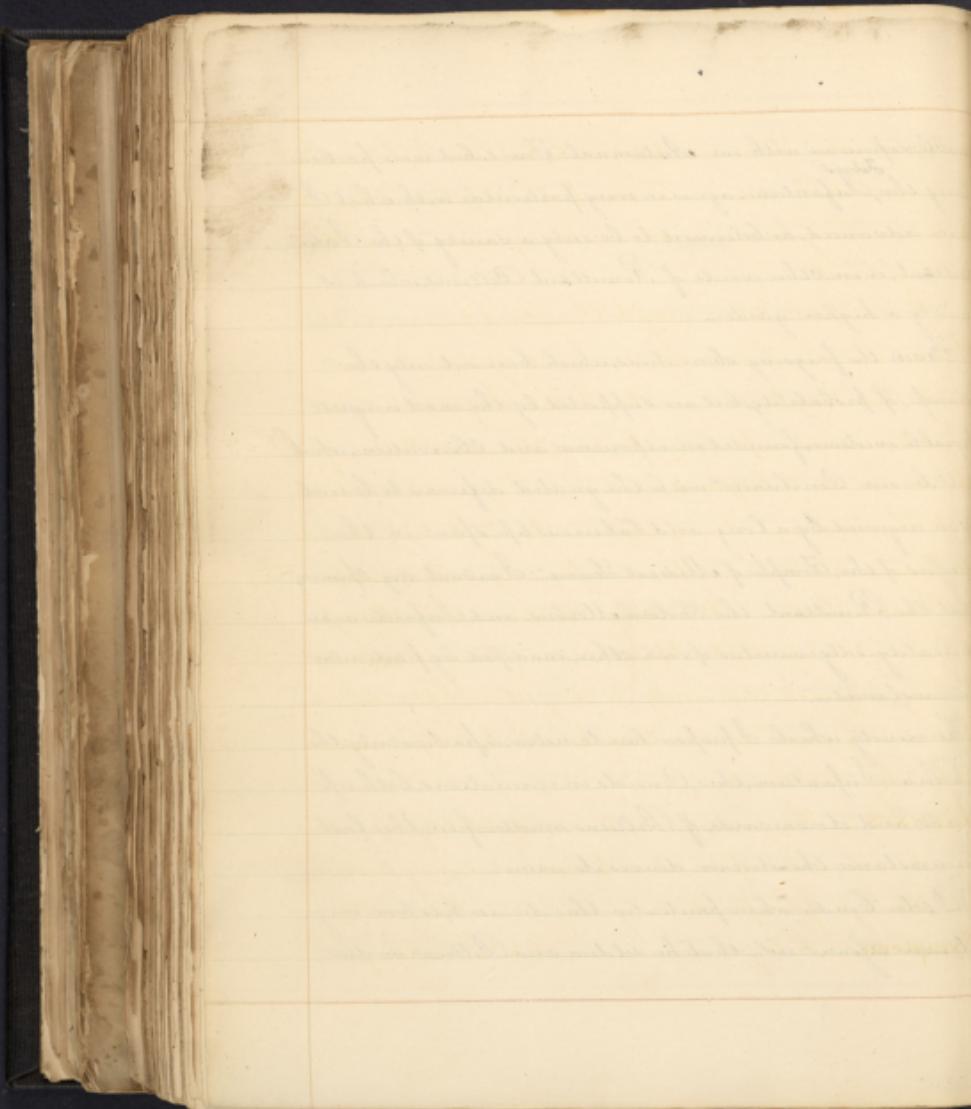


nable experience with our ~~Autumnal~~ ^{Jobs} Fours, but more particularly the Infantum, agrees in every particular with what I have advanced, he believes it to be only a variety of the Intermittent, or in other words of Remittent Billions, which is merely a higher grade.

From the foregoing observations, which bear not only the stamp of probability, but are supported by the most unquestionable evidence, founded on experience and observation, what will be our Conclusion? with the greatest deference to knowledge, acquired by a long and laborious life, spent in the recesses of the Temple of Medical Science, I submit my opinion, that the Remittent, the Cholera Morbus, and Infantum are in reality only varieties of each other, modified by particular Circumstances.

The variety which I propose here to notice, is particularly the Cholera Infantum, this consists in evacuations, both upwards, and downwards, of Billions matter, from this last Circumstance the disease derives its name.

Doctor Condie whose practice in this disease has been very extensive assures us, that he seldom saw Billions matter

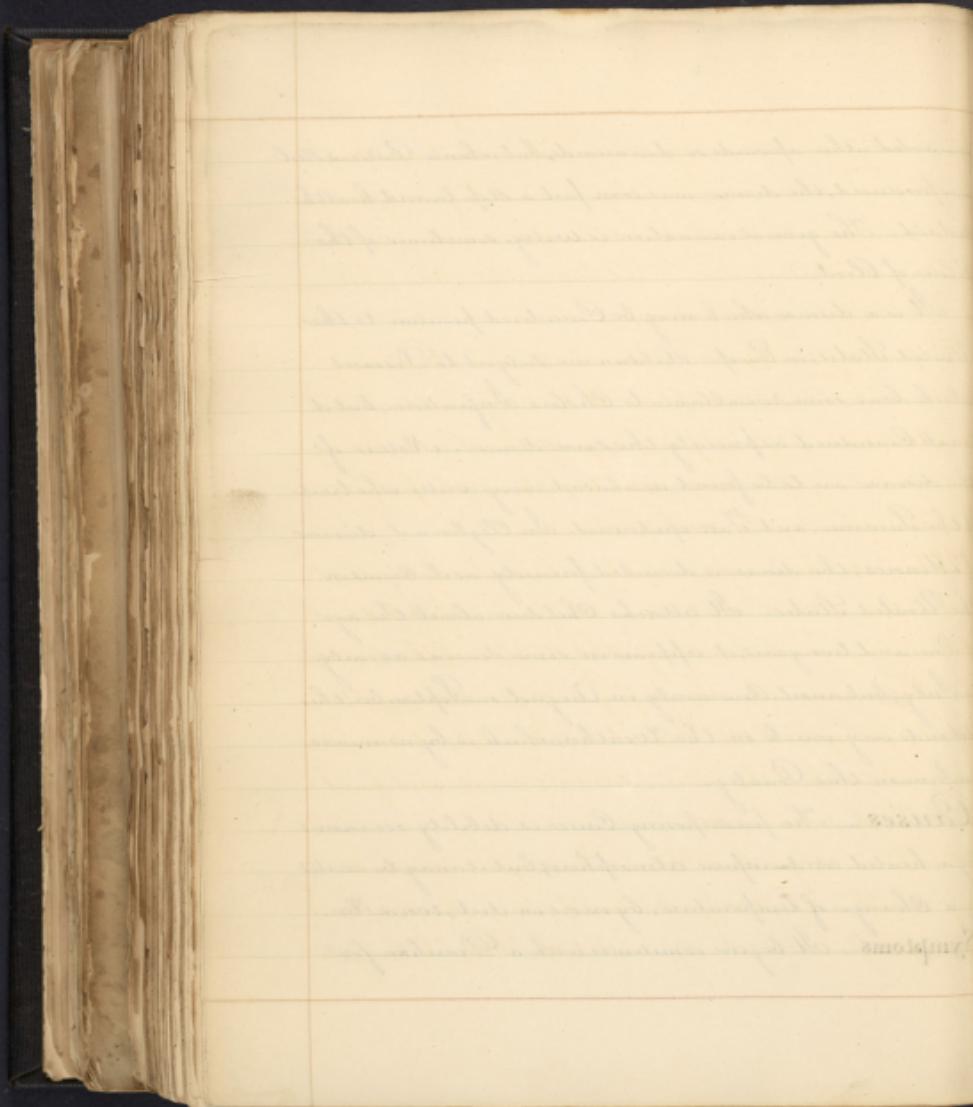


warranted either upwards or downwards, but when a Pillious Stool was produced, the disease was soon put a stop to, and health restored - The general evacuation is watry, sometimes of the Colour of Blood -

It is a disease which may be Considered peculiar to the United States; in Europe Children are subject to Diseases which bear some resemblance to Cholera Infantum; but it is not Considered as precisely the same disease. Notices of the disease are to be found in almost every writer who treats of the Summer, and Fall epidemics. In Cleghorn's Diseases of Minorca, the disease is described precisely as it occurs in the United States. It attacks Children about the age of One and two years, it appears in some seasons as early as July, but most Commonly in August or September; this depends very much on the Weather, which is by no means uniform in this Country.

Causes - The predisposing Cause is debility occasioned by a heated and impure atmosphere; but it may be excited by a Change of temperature, by errors in diet, teams &c.

Symptoms - It begins sometimes with a Diarrhoea for

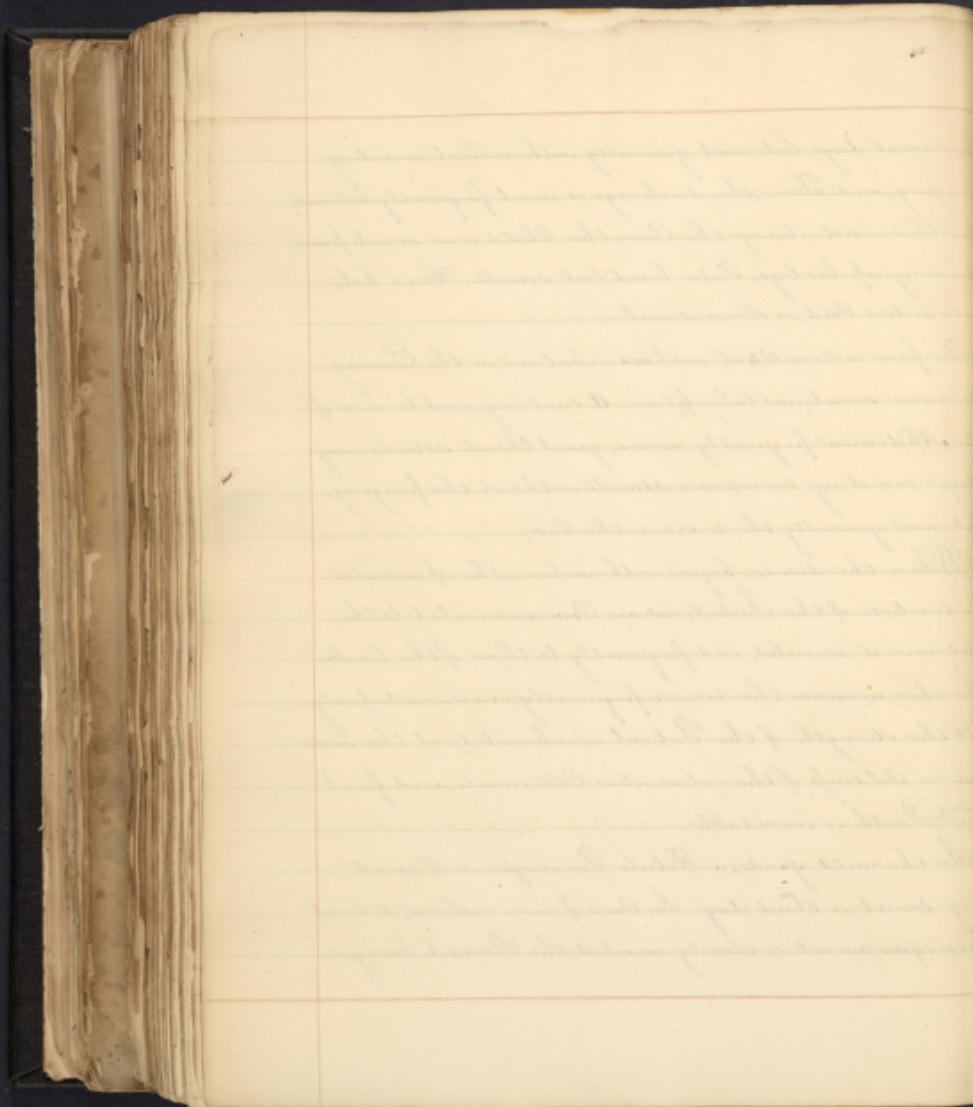


for several days; but most generally with violent vomiting, purging, and Fever; the discharge is most frequently bilious, but this is not always the Case; the Child is in much pain, drawing up his legs; Pulse hard, but small. Head hot; extremities Cold; or else natural.

The fever is remittent with exacerbations in the Evening: delirium sometimes takes place. A swelling, and tension of the Abdomen frequently occurs, great thirst attends every day; vomiting sometimes attends without the purgings, but most generally the reverse is the Case.

When the disease begins with violence, the spasmotic Contraction of the Intestines, are communicated to the abdominal muscles, and frequently to those of the limbs. In this manner the disease frequently increases rapidly till the Strength of the Patient is exhausted; at the same time a Coldness of the extremities, Cold sweat, and fainting. ^{comes} Death is inevitable.

In the mildest grade, a Fibrile Paroxysm is observed every second or third day. In Cases of more violence, distinct Paroxysms are not so clearly marked, the Stomach being so



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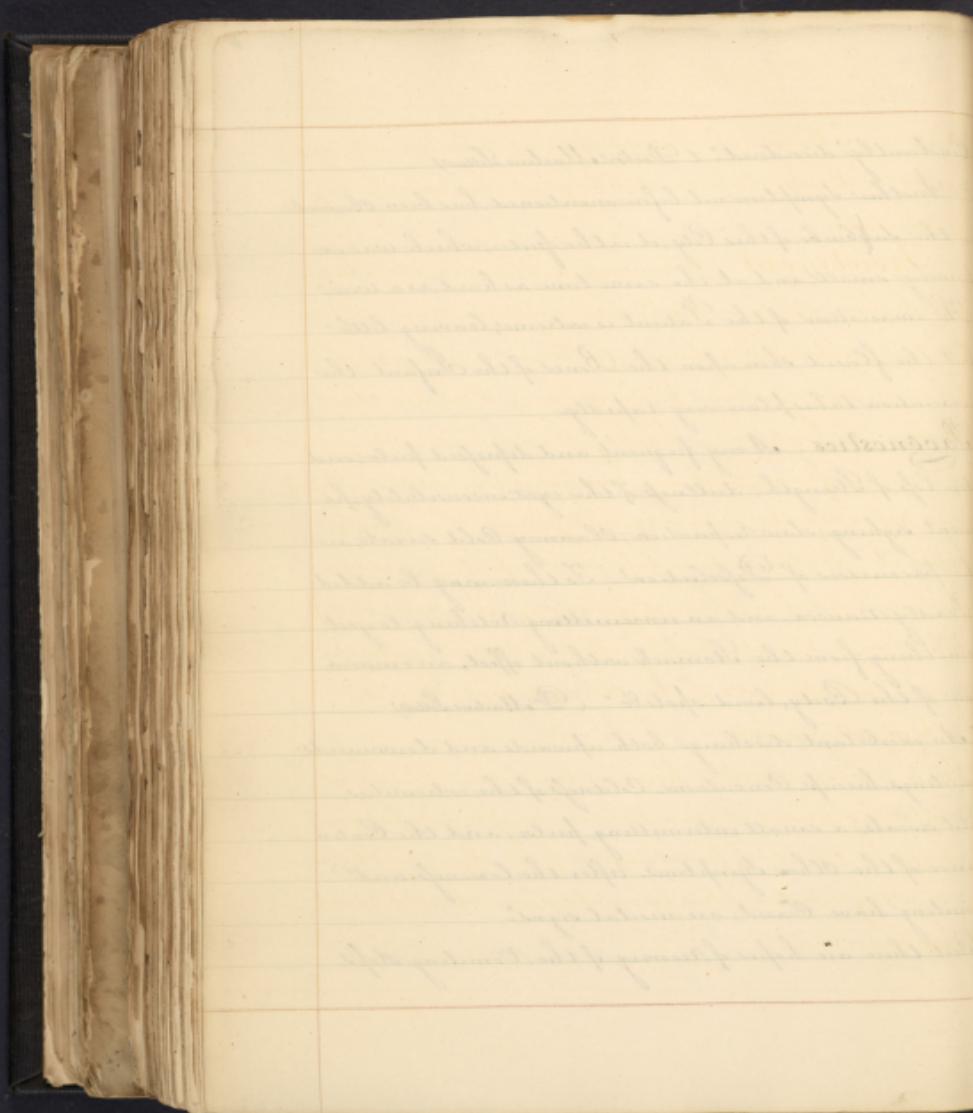
Constantly disordered." (Doctor Martens Letter)

Another symptom not before mentioned has been observed in the suburbs of this City, it is the pulse, which was extremely small, and at the same time as hard as a wire. The emaciation of the Patient is extreme; leaving little but the flacid skin, upon the Bones of the Infant. the emaciation takes place very rapidly.

Pronostics. A very frequent and depreſed pulse; and diminſion of Strength; dullness of the eyes; insensibility; frequent sighing; slow respiration; Clammy Cold sweats, are the precursors of Difolution. To these may be added; Deadl y Nausa, and an unremitt ing retching to eject something from the Stomach without effect, an emacia tion of the Body, livid spots &c" (Doctor Martens Letter)

"An exorbitant discharge both upwards and downwards; faintings, hiccup, Convulsions. Coldness of the extremities, Cold sweats, a small intermitting pulse, and the Contin uance of the other symptoms, after the loſſe of and vomiting have ceas'd; are mortal signs."

"But there are hopes of recovery if the vomiting stops"

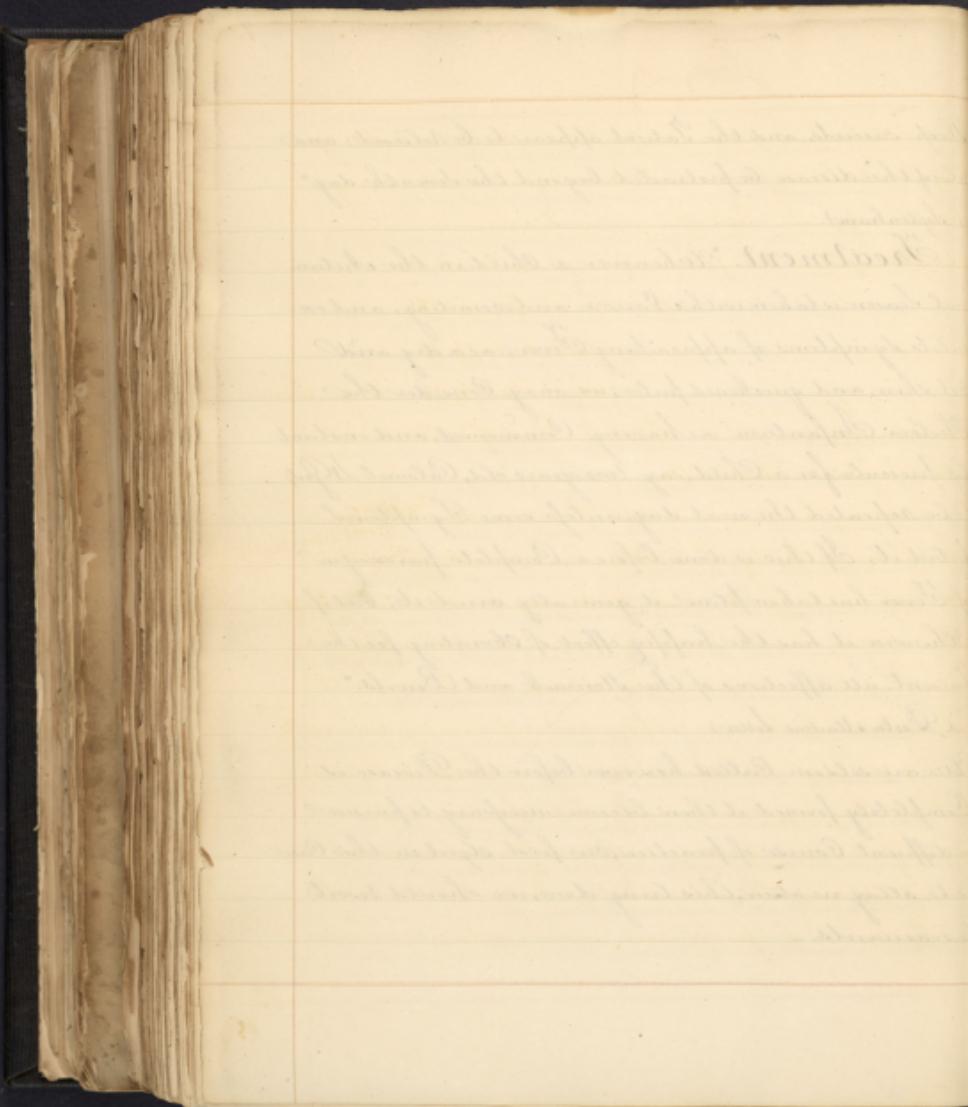


Sleep succeeds, and the Patient appears to be relieved; and
also if the disease be protracted beyond the seventh day"
(Sydenham)

Treatment. "Whenever a Child in the Autumnal Season is taken with a Pausa, and vomiting, and exhibits symptoms of approaching Fever; as a dry and hot skin, and quickened pulse; we may consider the Cholera Infantum as having Commenced, and instantly prescribe for a Child, say two years old, Calomel & Gums, to be repeated the next day, unless some Symptoms fail it. If this is done before a Complete paroxysm of Fever has taken place, it generally arrests it; but if otherwise it has the happy effect of Obviating for the present, all affections of the Stomach and Bowels."

(Doctor Martin's Letter)

We are seldom called however before the Disease is completely formed; it then becomes necessary to pursue a different Course of practice; our first object in this case is to allay irritation; this being done, we should resort to evacuants.



To meet the first indication the Warm bath and Anodyne
Injections stand prominent. Linapums, Cloths wrung out
with Spirits, with Tinct Opii are beneficial.

As an injection the following is recommended -

Q J Opii - QH XL

Gum Arabic 3 ij

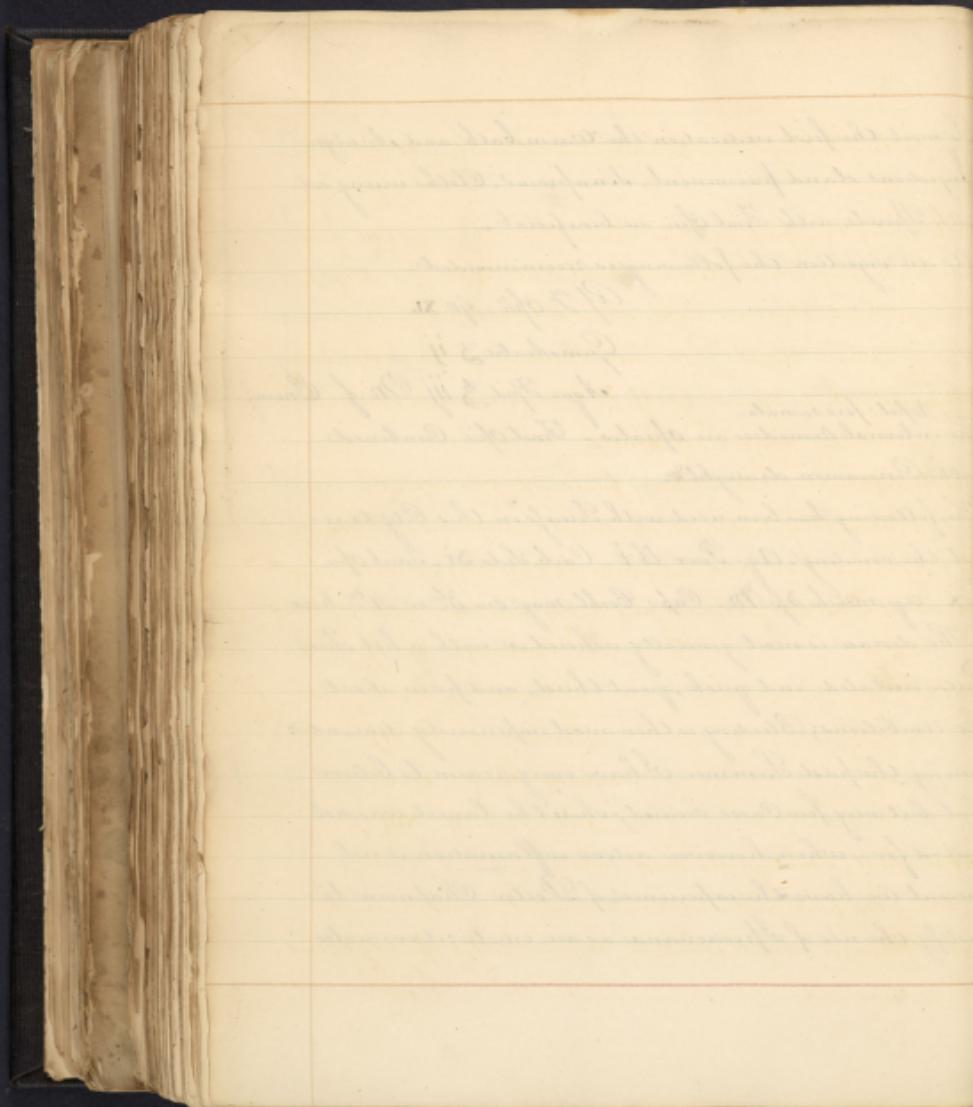
Aqua Fpid 3 ij M. f. Enem:

Aspof. ferro-nata.

The internal Remedies are Opates - Tinct Opii Combined
with Annamom draught.

The following has been used with Success in this City to re-
medy the vomiting - Ag. Pare 6b.i - Carb. Soda 3i - Tinct Opii
4p. - Ag. menth 3p. M. Cap. Cockl Mag: Om 3^l & 4^l horæ

The disease is most generally ushered in with a hot shew
Pulse irritated and quick, great thirst, and pain about
the umbilicus; Bleeding is then most impudently demanded
during the past Summer I have every reason to believe
that but very few Cases occurred, when the lancet was not
called for - when however active inflammation is not
present we have the experience of Doctor Chapman to
justify the use of Specacuana as an emetic; it evacuates



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gives a tone to the System, equalizes excitement, and determines to the skin.

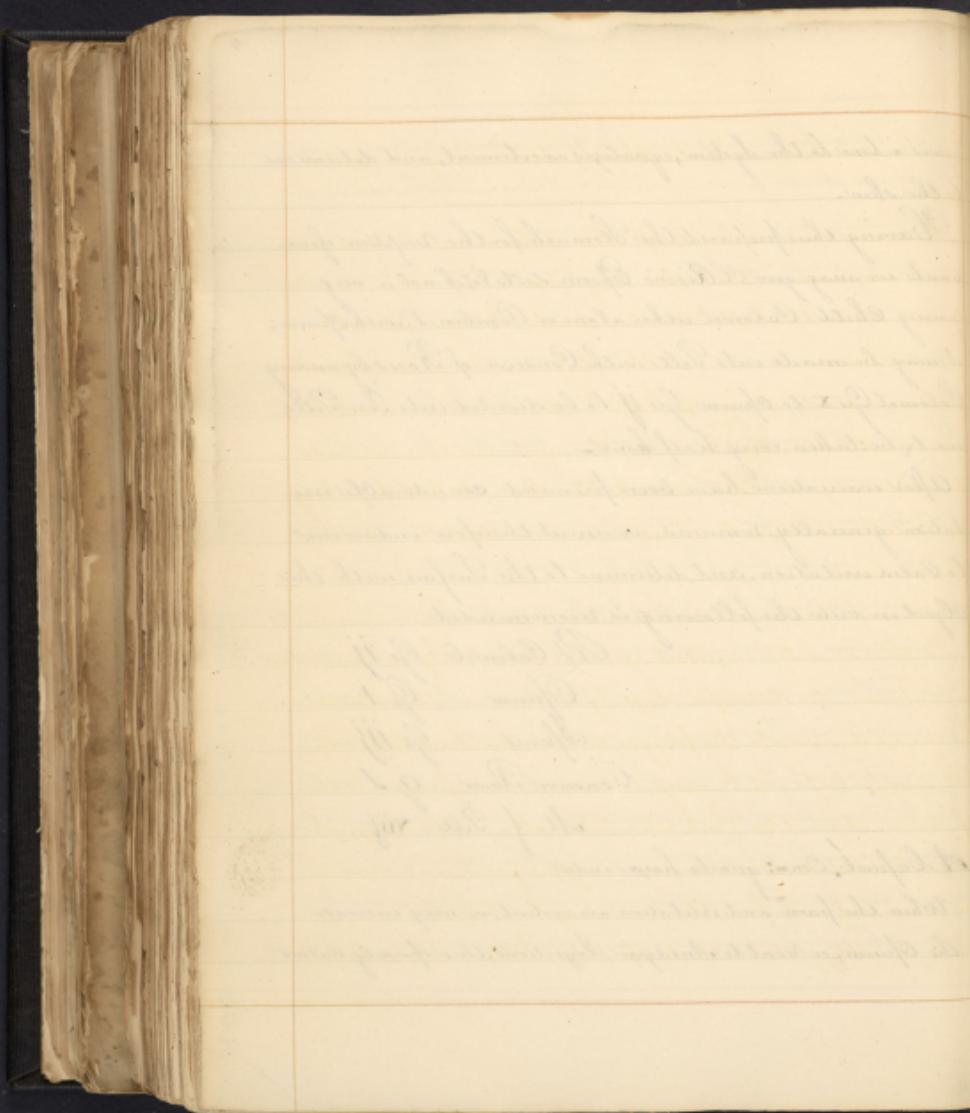
Having thus prepared the Stomach for the reception of our wants we may give O. Ricini. Epsom salts &c; if not a very young Child Calomel either alone or Combined with Opium; it may be made into Pills with Conserve of Roses by mixing Calomel Goo to Opium Goo if to be divided into Ten Pills one to be taken every half hour.

After evacuations have been premised considerable irritation generally remains, we must therefore endeavour to calm irritation, and determine to the Surface with this object in view the following is recommended.

℞ Calomel	Gr ij
Opium	Gr 1
Specac	Gr III
Conserve Rose	gr. I
Al. f. Rile	viij

At Capit. Omni: quarta hora iudic

When the pain and irritation are violent, we may increase the Opium, or resort to Anodyne Injections, this speedily Calms



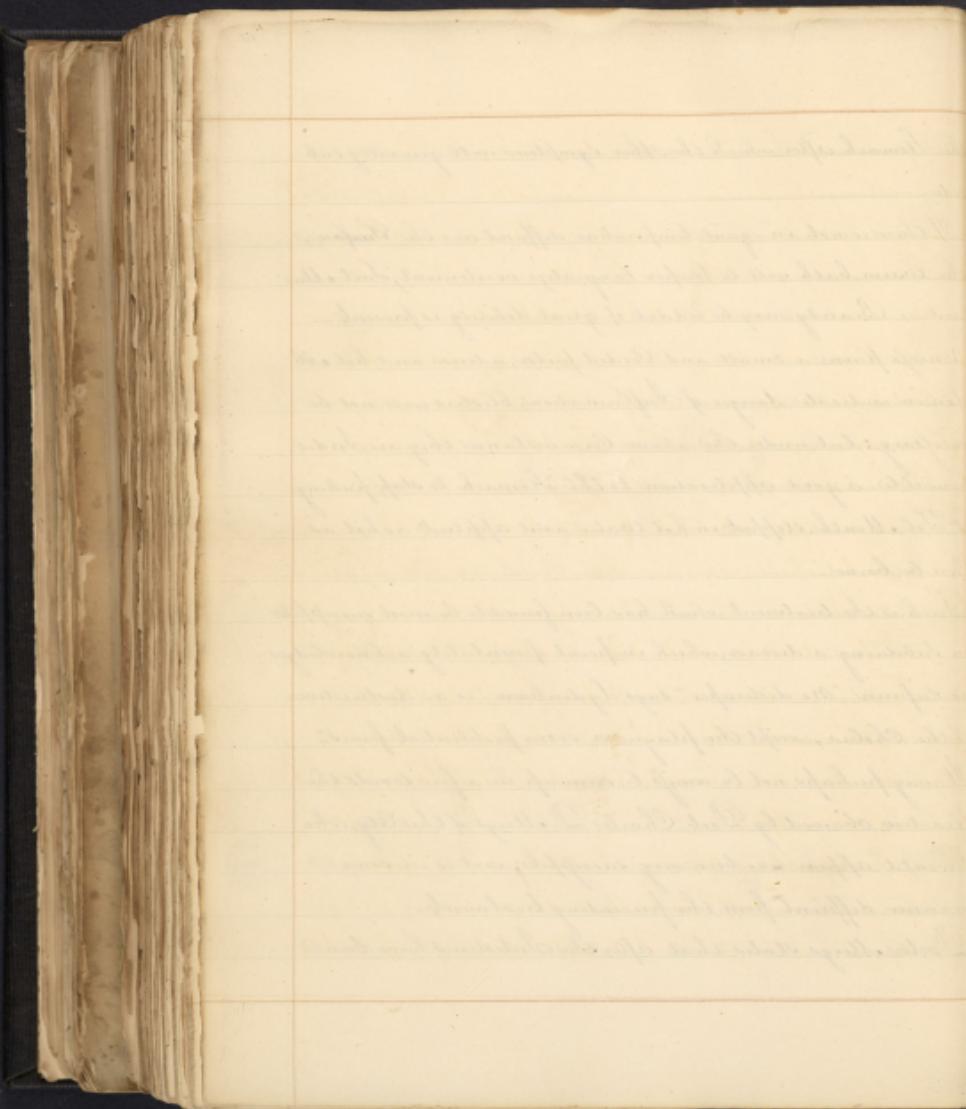
the Stomach after which the other symptoms will generally subside.

If there is not an equal temperature diffused over the Surface,
the Warm bath will be proper to equalize excitement; Salt & Mus-
tard or Brandy may be added if great debility is present—
Unless pain, a small and rapid pulse, a tense and hot &c.
Semen indicate danger of Inflammation, blisters will not be
necessary: but under the above Circumstances they are Indis-
pensable. a good application to the Stomach to stop purging
is Sol. Menth. steeped in hot Water and applied as hot as
can be borne—

Such is the treatment which has been found to be most successful in subduing a disease, which in point of mortality acknowledges no superior "No distemper" says Sydenham "is as destructive as the Cholera, except the plague or some pestilential fever."

It may perhaps not be amiss to sum up in a few words the practice observed by Dr. Charles D. Allegs of this City, who it would appear has been very successful; as it is in some manner different from the preceding treatment.

Doctor Meigs states that after the Intestines have been



Cholera Infantum.

By Cholera Infantum is understood in the United States, the vomiting, and purging of children. From its almost uniformity, occurring in the summer months in Philadelphia. It is frequently, and especially by the vulgar, denominated the disease of the season, or the summer complaint. Dr Rush has asserted, that Cholera Infantum never makes its appearance in Philadelphia until the middle of June, or 1st. of July; and generally continues until about the middle of September. Were this disease as much confined to the summer months in other climates, as it is in this, it might with very great propriety be denominated the summer complaint.

But in ^{Bartolow} S. S. its manifestations are announced in April and May; and hence ^{the} name of April and May disease. It appears to be the same disease, which Dr John Bynne has named *Atrophicae Atactatarum*, be-

ng merely a Latin translation of weoming brash,
the vulgar name, by which it is known in Scotland. The phenomena of the disease as it appears in
the two countries, are not, however, precisely similar.
But this is not expected to be the case in a disease
depending so much on climate; Nor is there a
greater dissimilarity in them, as described by Dr
Chyne and Dr Chapman, than we might expect
~~a~~ from the difference in the climates; espe-
cially when we see how much the disease among
us depends upon temperature. I conceive these obser-
vations receive a strong corroboration from the obser-
vations of Dr Chyne. The duration of cholera
Infantum he says is varied by the seasons of the
year, and by the changes in the temperature of
the weather. A cool day frequently abates its violen-
ce and disposes it to a favourable termination.
The great equality of the climate of Great Britain
we should expect would render its occurrence less
frequent and less confined to particular seasons

its symptoms less violent, and more tractable, and its progress less rapid, even when advancing towards an unfavourable termination.

We have already shown, that in Philadelphia it is a disease of the summer months. Dr. Chyrn considers it to be generally a disease of the autumnal months in Scotland. He says he has seldom seen it commence before the summer solstice, or after the end of the year, being most prevalent in sickly seasons. In his treatise on this disease he has published eleven cases, three of which commenced in May, one of them as early as the 6th, and one case which commenced about the middle of November. The dates of these do not correspond exactly with the limits he has assigned, but they show that the period of its prevalence is about twice as long in Scotland as Dr. Rush has assigned to it in this City. In that country the disease is seldom fatal within the 6th or 7th week, but in Philadelphia the disease is sometimes

fatal within a few days, and Dr. Chapman has seen a case where it terminated fatally within twenty four hours. of these differences in the disease, as it appears in the two countries, we shall say more presently. The predisposing cause of cholera infantum consists in the debility induced by the operation of the heated and impure air of large cities. The heated atmosphere probably produces some derangement in the functions of the biliary apparatus, thereby changing the character and qualities of the bile. This probability is generally strengthened by the very common known effects of a tropical climate upon this apparatus. The principal exciting causes are improprieties in diet and clothing, especially the abrupt change from breast-milk to common food, and at a season when the chylotrophic viscera possess the greatest irritability. It is also brought on by sudden changes in the humidity and temperature of the air or other circumstances, that would suddenly obstruct perspiration.

tion. Among improprieties of diet, Dr Rush reckons the various kinds of fruit. This opinion has been contested, but it is supported on the best authority. Detention has been reckoned among the exciting causes of this disease; But as it appears only in warm weather when there are other exciting causes of this disease, and as there are no cases of it connected with detention in cold weather, these circumstances would seem to furnish an argument to refute the opinion. This argument however, is not conclusive for why should detention, more than the other exciting causes produce the disease. ^{When} ~~and~~ ^{and} the predisposing cause is wanting. During detention the secretion of saline is increased and the bowels sometimes rendered irritable and we are told by Mr Burns that bowel complaints are produced by it. As the cold is most obnoxious to the disease the second summer, and as it is about that time, that the pro-cess of detention is produced and most troublous.

one, it is probable, that dentition sometimes causes and often aggravates the disease. As cases of this disease occur, in which worms are discharged in considerable numbers, it has been attributed to these also. But as there are cases, where *Cholera Infantum* has assumed the most malignant form without the sign of a worm; and as those cases where worms are concomitant, exhibit no unusual malignancy, it is probable the disease would seldom occur without the aid of some other exciting cause. This is one of those diseases upon which much light has been thrown by post-mortem examinations. But it seems to have been investigated little or none until Dr. Bhyn attempted it some more than twenty years ago. Previous to that time, he tells us the disease was not known to the Scotch Physicians. He says some of them had observed a purging as a very common consequen

ce of weaning; But they supposed that it arose from a mesenteric enlargement in serofulous children. Which last opinion he entertained, until dissections gave him different views. The morbid appearances in dissections are confined to the abdominal cavity. & none are discovered in the contents of the cranium or thorax. Dr. Brown says "he observed in every instance, that the intestinal canal, from the Stomach downwards, abounded with singular contractions, and had in its course one or more intussusceptions; that the liver was exceedingly firm, larger than ~~the~~ natural, and of a bright red colour; And that the enlarged gall-bladder contained a dark green bile. In some dissections the mesenteric glands were swelled & inflated; in others, however, they were scarcely enlarged, and had no appearance of inflammation. In this country, according to the observations of Dr. Chapman, the morbid appearances denote, as we might expect

more violent action. Marks of previous inflammation may be seen in the whole extent of the alimentary canal, confined principally to the mucous membranes. Dark livid spots are to be seen on this coat in the stomach and small intestines, but particularly in the duodenum. The peritoneum is particularly affected, but the marked appearances on it are not considerable. The hepatic apparatus is much enlarged, the liver being very generally if not universally enlarged, and considerably altered in its condition. It is very often indurated, but more frequently it is soft and flabby in its texture. The gall bladder is usually filled with bile variously situated and altered in its nature. In Scotland the disease is generally slower in its progress, it there is more of a chronic nature, we should examine upon finding the liver more frequently and firmly ~~indurated~~ indurated, and might expect also to find as we do

in this country more evident marks of inflammation. From investigations Dr. Chyne and Dr. Chapman are both led to the conclusions, that cholera infantum is a gastric affection in its commencement, and that the hepatic system is sympathetically drawn into a state of disorder. The difference in the disease, as it appears in Scotland and the United States, seems to consist in this; in that country the primary exciting cause acts so fully, that the disease will be produced only when the exciting cause acts most powerfully. And as the abrupt weaning of the child, that is, the change of breast milk for common food is the most powerful exciting cause we might expect most cases of cholera infantum to succeed weaning, and that it might appear so often connected with, or to succeed weaning, as to acquire its vulgar name of weaning rash. As the disease depends then so much more upon

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the exciting cause, whose operations are not confined to the summer months, we should not expect it to be so limited, as we find it when the predisposing cause acts most powerfully. Accordingly we find that the ~~cases~~ cases reported by Dr. Blane occurred at various periods from the early part of May till about the middle of November. One reason, why this disease does not occur here as frequently as in the autumnal months as in Scotland, is that the predisposing causes here act so powerfully, that the disease is developed in all, who are obnoxious to it before the end of summer and that those, who have resisted the predisposing and exciting causes during the summer months, will without difficulty resist the latter when the former no longer exist; For it can hardly be said, to exist here after the middle ~~the~~ ~~the~~ of September. So great is the difference between our summer and

autum. Treatment To impress one with the importance of thoroughly understanding the treatment of this disease, it is sufficient to examine the bills of mortality in our ~~coronary~~ cities and large towns. For notwithstanding the nature of the disease is as Dr. Chapman says, "as well understood and the treatment greatly improved; it still continues, even at this improved, and enlightened state of medical science, to destroy multitudes of infants and even in more favourable cases to prove in a high degree obstinate and distressing. The diversified appearance that cholera infantum assumes, is not less difficult to be distinguished than comprehended. It is sometimes connected with the Annual Epidemics which occur in sickly countries, and at other times more familiarly recognised in the forms of Remittent and Intermittent fevers. It is pretty generally agreed by the physicians of the United States, and particularly

imprest on the minds of the students by Dr. Chapman's pupils that a retreat from an unhealthy situation, and particularly a change from the air of cities to some salubrious part of the adjacent country is one of the best means, both to prevent and to cure the disease. The evidence in favour of this opinion must be obvious, and accended by every one. But there is a large part of the community, upon whose circumstances in life, fortune has never smiled, and consequently, are prevented from embracing such advantages. In this case the best expedient must be resorted to, of which the circumstances of the individual will admit. The first indication which presents itself in the cure of this disease is to evacuate the stomach and intestines of the accid^d contents. In effecting this purpose, some difficulty occurs in the outset, as to the choice of the means. It is probable, that there can have as an evict

it, and balanced or balsomil as a purgative, would answer very well. But when the stomach is in a state of great irritability, convulsed, and spontaneous vomiting has taken place, an emetic would be highly improper and dangerous. Before the administration of such a remedy, the violent action of the stomach should be quieted, or allowed to subside; and when it is discovered, that all the offending matter has been evacuated by spontaneous vomiting, it may be improper to administer an emetic. Or if there be great loss of strength and the disease should have proceeded with great violence, producing pulsings of pulse and a receding of heat from the extremities, an emetic would be very hazardous and attended probably with the most serious consequences. But it is stated by Dr. Darwin, that an emetic which soon ceases to operate will very frequently leave the stomach

stronger than before, which he says is owing to an accumulation of irritability during the stomach's inverted action. To believe any doubt on this subject, it would be proper, when it is found that the prince ~~viscere~~ ^{viscere} is evacuating to administer a dose of calomel, the dose to be accommodated to the age of the patient and other circumstances. Calomel, particularly in doses combined with opium, is recommended by Dr Chapman as being a very successful practice in doses of one eighth to one quarter ^{of a} grain of Opium and from one to three grains of Calomel divided into eight or ten powders, to be given every two or three hours. If this produce too frequent discharges the opium is to be increased. Cholera infantum being primarily a gastric disease starch, sometimes, is the irritability of the stomach that no medicine will be retained.

It then becomes necessary to calm the stomach and allay irritation by anodyne injections, by fomentations to the stomach and the warm bath, except however in cases of very small children, the combination of calomel and opium is thought to be preferable. Dr. Miller prefers it for several reasons. The first is the ease with which it may be administered. The bulk is so small that it may be easily enucleated so as not only not nauseate, but to be quite agreeable. The second reason is that the specific gravity of calomel renders it very difficult to be dislodged from the stomach, even by the most violent vomiting. The third is that when calomel and opium are combined in this way, they can be given in much larger doses, than they can be separate as they are believed to soften and correct the powers of each other. Fourth when the disease takes an a fatal tendency, and there is reason to believe effusion in the

head or destruction of the organization of the stomach and bowels, unless the fatal tumescence takes place at a very early period, it is the best calculation of all our remedies to arrest that tendency. Fifthly Calomel when exhibited in small doses combined with opium, excites a strong absorbent action in the stomach and intestines. The metallic salts are said to possess more or less of the same power; and the activity of the absorption is found to be in proportion to the completeness of the evacuation previously made by the calomel alone, or other evacuating means. As absorption is generally increased by irritation, whether by means of the lancet or purgation. It is now pretty generally agreed among Physicians that calomel although gentle and safe in its operation is the most effectual and penetrating of all the medicines employed to cleanse the bowels, and sometimes the irrita-

tality of the Stomach is so great that violent vomit-
ing takes place almost every minute, accompa-
nied with thirst, accompanied and pain about the epig-
astric region with fever and quick pulse. It would
be proper in such cases to evacuate the stomach
with Specae, which relieves it of the discharges
and determines actions from that part to the surface.
But when there are a weak pulse, distended
countenance, cold clammy sweats, eyes sunken
and indicating a sinking condition of the system,
we should avoid an emetic and resort to
stomachants, such as are demanded in all bowel
complaints attended with fever. After having
prepared the stomach for the reception of Medi-
cines, the effect of mercurial purges may be tried
with some probable advantage; especially when
combined with opium or opium salts. Notwith-
standing there are other purgatives in high repu-
tation that might be employed with tolerable success,
yet the superior efficacy of mercury in discha-

rging substances whether bilious or of any other description, not easily removable by other purgations, is well known to every physician, who has had an opportunity to compare them. Dr. Chynns testimony in its favour is very unequivocal: Indeed he seems to place almost his whole reliance on it. He was induced to try it for the first time in a hopeless case by way of experiment only. Since this case he says "I have had the opportunity of calomel convinced by many additional cases and now I have the firmest belief, that it will prove effectual at a stage of the disease, when no other medicine will. That I am acquainted with, would be attended with any permanent benefit. But to collect the testimony of those writers in favour of the use of calomel in the bowel complaints of children would be multiplying the opinions of a multitude; And to cite authority, to establish a point not contested, would be unnecessary.— In the advanced stage of cholera infantum,

Alum may be frequently be employed beneficially. Having evacuated all acrid and offensive matter from the alimentary canal it is recommended to commence with small doses. Half a grain of alum in combination with a small portion of opium, to be gradually increased may be administered in a pill. The *Sacharum Statuloni*, combined with Opium, has been advantageously employed of late. When only a troublesome Diarrhoea remains, some of the vegetable astringents may be tried with advantage. In addition to internal remedies it will often be advantageous and even necessary to have recourse to such external remedies as produce a stimulation to the surface and equal excitement. This is an indication of no small importance, and the most safe and efficacious means of accomplishing it are the warm bath and blisters. The excitement is often very unequal, the extremities being very cold, while there is a burning heat in and about the seat

of the disease. The warm bath is probably more speedy in its operation and more agreeable, but probably less efficient and less permanent than blisters. These may be applied to the stomach, abdomen, or extremitiees at different stages of the disease, according to circumstances.

When the stomach becomes too debilitated to digest food and too irritable to retain the ingesta, the alkaline preparations, combined with mild aromatic tonics are sometimes given with advantage. But cases of this kind frequently occur, in which no means accomplish our wishes, so well as the settler water. Aromatic injections are very beneficial, and in some cases seem to be our best remedy. The diet should be light and consist of liquid pharmaceutical preparations, sweetened with loaf sugar, to which some mild aromatic may be added, when no febrile symptoms exist. The patient should be allowed only a small quantity of drink at a time, as they are

inclined to drink often, although this disease occurs at a season when little or no drink seems necessary for the comfort of the patient. It is however the less important in the management of it to attend to drink, especially where we see such great inequality in the excitement. The patient should be clothed in flannel, particularly the extremities. Sweet guttae, are the views, I have adopted of the character, causes, and treatment of this disease. Should they be found accordant with your experience and observation, and the doctrines you have thereon elicited, I will hope, that this exposition of them notwithstanding its defects, will meet your approbation.

Robt. Toombs.



